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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/894,379	06/29/2001	Richard Henry Dee	2001-019-TAP	5546

7590 12/13/2005

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EXAMINER	
CASTRO, ANGEL A	
ART UNIT	**PAPER NUMBER**
2653	

DATE MAILED: 12/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/894,379	DEE ET AL.	
	Examiner	Art Unit	
	Angel A. Castro	2653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-12 and 14-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-12 and 14-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 7/14/05
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/8/05 has been entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-2, 4-6, 10-12, 14-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Tobise et al (U.S. Pat. 5,748,416).

Regarding claims 1 and 11, Tobise et al discloses a reduced sensitivity spin valve sensor apparatus (figure 15), comprising:

a spin valve sensor; and

at least one magnetic effect inducing device 21,

wherein the at least one magnetic effect inducing device induces a magnetic field to the spin valve sensor to thereby reduce a sensitivity of a free layer of the spin valve sensor to applied

magnetic fields and wherein the at least one magnetic effect inducing device is a pair of permanent magnet stiffening elements (column 13, line 67; column 14, lines 45-48 and 15-21).

Regarding claims 2 and 12, Tobise et al discloses that the at least one magnetic effect inducing device is at least one permanent magnet (column 14, lines 40-42 and 8-9).

Regarding claim 4-5, 14-15, Tobise et al shows that the at least one magnetic effect inducing device is a pair of permanent magnet stiffening elements 21 formed of cobalt-platinum/chromium magnets (see column 13, line 67, and figure 15).

Regarding claims 6 and 16, Tobise et al discloses that the at least one magnetic effect inducing device reduces the spin valve sensor's propensity to saturate (column 14, lines 21-27).

Regarding claims 10 and 20, Tobise et al discloses at least one insulating film 42; and at least one magnetic shield 52, wherein the insulating film is alumina (column 13, lines 62-63).

4. Claims 1, 7-9, 21-28, 11, 17-19, 29-36 are rejected under 35 U.S.C. 102(b) as being anticipated by Fontana et al (U.S. Pat. 5,528,440).

Regarding claims 1 and 11, Fontana et al discloses a reduced sensitivity spin valve sensor apparatus (figure 5), comprising:

a spin valve sensor 60; and

at least one magnetic effect inducing device 91, 66,

wherein the at least one magnetic effect inducing device induces a magnetic field to the spin valve sensor to thereby reduce a sensitivity of a free layer of the spin valve sensor to applied magnetic fields (column 8, lines 16-20) and wherein the at least one magnetic effect inducing device is a pair of permanent magnet stiffening elements.

Regarding claims 7, 21, 17 and 29, Fontana et al discloses that the at least one magnetic effect inducing device is an antiferromagnet layer (column 6, lines 53-57).

Regarding claims 8-9 and 18-19, Fontana et al discloses that the antiferromagnet layer generate a longitudinal exchange induced bias field in the free layer that reduces the sensitivity of the free layer to applied magnetic fields (column 8, lines 16-20).

5. Claims 1, 7-9, 11, 17-19, 21-36 are rejected under 35 U.S.C. 102(b) as being anticipated by Miyauchi et al (U.S. Pat. 5,852,533).

Regarding claims 1 and 11, Miyauchi et al discloses a reduced sensitivity spin valve sensor apparatus (figures 3-4), comprising:

a spin valve sensor; and

at least one magnetic effect inducing device 126,

wherein the at least one magnetic effect inducing device induces a magnetic field to the spin valve sensor to thereby reduce a sensitivity of a free layer 121 of the spin valve sensor to applied magnetic fields and wherein the at least one magnetic effect inducing device is a pair of permanent magnet stiffening elements (column 7, lines 58-64).

Regarding claims 7 and 17, Miyauchi discloses that the at least one magnetic effect inducing device is an antiferromagnet layer (column 7, lines 44-46).

Regarding claims 8-9 and 18-19, Miyauchi discloses that the antiferromagnet layer generate a longitudinal exchange induced bias field in the free layer that reduces the sensitivity of the free layer to applied magnetic fields (column 7, lines 58-66).

Regarding claims 21 and 29, Miyauchi discloses that the at least one magnetic effect inducing device includes a pair of antiferromagnetic layers 124, 126 (see figures 3 and 4).

Regarding claims 22-24 and 30-32, Miyauchi shows that the pair of antiferromagnetic layers includes an antiferromagnetic layer 126 that pins a ferromagnetic layer at zero degrees relative to a long axis of the free layer and an antiferromagnetic layer 124 that pins a ferromagnetic layer at ninety degrees relative to a long axis of the free layer 121 (see figure 4).

Regarding claims 25 and 33, Miyauchi discloses that the first and second antiferromagnetic layers have different blocking temperatures (column 8, lines 52-63).

Regarding claims 26 and 34, Miyauchi shows a ferromagnetic layer 123 spaced from the free layer 121 by a nonmagnetic layer 122 (see figure 3).

Regarding claims 27-28 and 35-36, since the thickness of the spacer layer of Miyauchi is the same as Applicant's, it is inherent that the thickness of the nonmagnetic layer is used to control the ferromagnetic exchange between the ferromagnetic layer and the free layer.

Response to Arguments

6. Applicant's arguments filed 6/8/05 have been fully considered but they are not persuasive.

Applicant asserts in page 9:

> "While Tobise may teach MR heads that have reduced sensitivity, the MR heads taught by Tobise are not at least one magnetic effect inducing device that is a pair of permanent magnet stiffening elements."

The Examiner points out that Tobise discloses a pair of permanent magnets 21 in figure 15 (column 13, line 67). It is not clear what additional property a permanent magnet must have in order to be a stiffening element.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angel A. Castro whose telephone number is 571-272-7584. The examiner can normally be reached on Monday through Thursday, 8 AM to 6 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William R. Korzuch can be reached on 571-272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Angel Castro C

ANGEL CASTRO
PRIMARY EXAMINER
Angel Castro, Ph.D.